

P.O. Box 1660 • Boise, ID 83701 208.342.0031 • mineidaho.com

March 25, 2020

VIA EMAIL - paula.wilson@deq.idaho.gov

Paula Wilson Idaho Department of Environmental Quality 1410 N. Hilton Boise, ID 83706

Re: DEQ Negotiated Rulemaking - Ore Processing by Cyanidation,

Docket No. 58-0113-1901 - Draft No. 5

Dear Ms. Wilson:

The Idaho Mining Association (IMA) very much appreciates all of IDEQ's efforts in modernizing Idaho's Rules for Ore Processing by Cyanidation and we believe the draft Rule is very close to addressing IMA's concerns. We believe the hydraulic head requirement for tailings impoundment liners recently added to the subject draft Rule should be revised and we have suggested language below. We have also suggested revisions to the draft Rule to be consistent with recent statutory changes, made some additional suggestions and seek clarification on timing of design plans. We look forward to working with IDEQ on finalizing a Rule after the next meeting. IMA's proposed changes to the subject draft Rule appear in redline within the text of this letter below.

## 050. PRE-APPLICATION PROCESS AND PRELIMINARY DESIGN.

03. Notice of Preliminary Design Approval or Disapproval. Unless otherwise provided in this Subsection 050.03, the Director shall notify the applicant in writing of the decision to approve or disapprove a preliminary design report within thirty (30) days after the Department receives all information required by Subsection 050.02. For alternative design proposals submitted under Section 205, the Director shall notify the applicant in writing of the decision for alternative design approval or disapproval within ninety (90) days after the Department receives all information required by Section 205. The time required to review and, if appropriate, approve the preliminary design report shall be considered separate from and shall not be included as part of the one hundred eighty (180) day time period for processing the formala complete application and issuance of a Director's determination pursuant to these rules. Approval of the preliminary design report does not authorize the construction, modification or operation of the cyanidation facility.

IMA Rationale: Consistency with Idaho Code 39-118A and remainder of the rule.

#### 100. PERMIT AND PERMIT APPLICATION.

## 03.r. Contents of Application.

Timing of Submissions of Plans and Specifications for Wastewater Treatment Facilities. IMA requests clarification around the timing of submission of plans and specifications for wastewater facilities. Section 100.03.r requires IDEQ approval of plans and specifications for "all" portions of a cyanidation facility at the time of submission of an application. A water treatment facility is likely within the definition of a "cyanidation facility" and therefore appears to potentially be subject to 100.03.r, although the eighteen components of cyanidation facilities requiring plans and specifications that follow in this section does not appear to specifically include wastewater treatment facilities. Notably Section 100.03.s.ii. related to submission of a water management plan at the time of application appears to more directly address future water treatment at a facility without necessarily requiring the submission of engineering plans during the application stage. IMA does not question the need for submission of plans and specifications for water treatment facilities, we just do not believe it is necessary or appropriate to address this at the application stage. It is important to note that water treatment facility designs, particularly for closure, cannot be advanced to the level of a signed/stamped set of plans and specifications at the permit application phase, because neither the influent concentrations and flows nor the effluent standards are yet known with a certainty that can be addressed in engineered stamped plans and specifications for the following reasons:

- 1. Water quality within a processing circuit and ultimately the TSF can be expected to evolve over time according to the water and solute mass balance, operational ore processing and tailings neutralization optimizations, and sequencing of ore types in the mine plan.
- 2. Bench- and pilot-scale treatability studies to support detailed treatment designs are ideally conducted with actual process water from the operating ore processing plant.
- 3. Water treatment design will be dictated by effluent standards established by IDEQ in a IPDES Permit, and in the case of long-life mines, would not occur in the first or even the second IDPES permit term.

IMA therefore suggests making it clear in the rule, that submission of plans and specifications for wastewater facilities prior to construction be made a condition in the cyanidation permit as opposed to being addressed at the application stage. While we acknowledge that IDEO will need some level of understanding about the kind of water treatment that will be implemented at a facility prior to a permit, it is premature to require the submission of engineering stamped designs during the application for the reasons stated above. We believe such an approach is consistent with the statutory scheme which requires an applicant to generally describe the "procedures and methods" for "water management" in a "permanent closure plan" for cyanidation facilities in Chapter 15, Title 47 and Idaho Code section 39-118A which only requires approval of plans and specifications prior to construction of a cyanidation facility and not prior to issuance of a IDEQ permit. We also believe it is not necessary at the application stage to have engineered stamped plans and specifications for construction of future waste water facilities in order for IDL to carry out its responsibility (in consultation with IDEO) to initially establish financial assurance for a facility as the statute envisions a periodic review and adjustment of financial assurance by IDL as water management requirements at a facility evolves over the life of a mine and during closure. We look forward to working with IDEQ in crafting language to address this issue in the subject rule.

**04. Cost Recovery Agreement.** Prior to submittal of the preliminary design report, an applicant shall enter into an agreement with the Department for actual costs incurred to review the preliminary design report and other submittals, process the permit application or any permit modification request, <u>and</u> issue a final permit, <u>and facilitate compliance with permit conditions through final closure of the facility. Final closure of the cyanidation facility will not be approved until the terms of the agreement have been met, including that the Department has been reimbursed for all actual costs incurred.</u>

IMA Rationale: Idaho Code 39-118A only authorizes reasonable fees for processing a permit application. Also, Idaho Code 39-118A does not authorize the Department to withhold approvals for failure to pay reasonable fees. Also, see comments to Sections 501 and 502.

## 200. REQUIREMENTS FOR WATER QUALITY PROTECTION.

03. Process Water Storage Sizing Criteria. All aspects of the cyanidation facility that entrain, utilize, treat, discharge, pump, convey, or otherwise contain process water, treated process water or run-off water from any portion of the cyanidation facility shall be included in the water balance. Each pond, tailings impoundments, and ditch conveying process water must be designed to maintain a minimum two (2) foot freeboard at all timesduring storage or conveyance of the design storm event. Leach pad design must include sufficient capacity for maximum expected operating flows plus storm flows from the design climatic event. Where appropriate, leach pad perimeter containment calculations should include the potential for drainage constrictions, including constrictions due to talus or washouts at the ore pile toe. Ore pile setbacks from the leach pad perimeter should be calculated based on local climatic conditions, ore properties, and site specific operating conditions. At a minimum, a evanidation facility ditch, pond, spillway, bypass structure, or tailings impoundment that stores or conveys process water shall be designed to contain the maximum expected normal operating water balance and the volume of run-on and run-off associated with a climatic event that has a frequency of occurrence of one (1) year in one hundred (100) years or one percent (1%). Snowmelt events and wave run-up-shall be considered in determining the containment capacity. Contingency plans for managing excesses of all waters included as part of the water balance shall be described in the water management strategy. Each A structure or system designed to contain process water or process contaminated water must include a means of bypassing excess water unless otherwise approved by the Department.

IMA Rationale: Replace "at all times" with "during storage or conveyance of the design storm event" in the second sentence, as it is impossible to guarantee freeboard would be maintained "at all times" when the design storm event has any finite probability of exceedance.

Strike the sentence beginning "Leach pad design..." as the referenced design storm and water-balance-based storage requirement is not applicable to leach pads. This addition is also redundant since the design storm and water balance concept is correctly applied and specified later in the paragraph to water-storing features. If IDEQ was intending to prescribe a design flow rationale for leach pad over-liner drains, this should be clarified and might be better added to 201.01 (hydraulic head requirement for leach pad liner systems).

Strike the sentences beginning "Where appropriate, leach pad perimeter..." and "Ore pile setbacks..." as these are highly specific to the leach pad itself, not process water storage in the conventional sense. If this content is to be retained, we suggest it would best be included in section 201 which is specific to leach pads. If it is retained, additional clarifications and reorganization are recommended, particularly to clarify whether the first sentence is also referencing the ore pile setback to edge of containment as in the second sentence, or rather some additional freeboard requirement in perimeter ditches.

Replace "cyanidation facility" with "ditch, pond, spillway, bypass structure, or tailings impoundment that stores or conveys process water" in the sixth sentence (to narrow it to only ditches and water-storing components of cyanidation facilities) and strike the addition "and wave runup" after "Snowmelt events" in the third-to-last sentence. The latter sentence originally referred to cyanidation facilities broadly (carrying forward from the logic of the former sentence), and so it should not include wave runup which is negligible or zero for ponds, ditches, pads, and tanks. Wave runup is only a consideration for large tailings impoundments, and such an impoundment design would generally have to account for wave runup under the IDWR Dam Safety Rule. Alternatively, if IDEQ wishes to include wave runup in their Rule, we suggest specifying that it applies only to tailings impoundments. Regarding the 100-year design criterion, if IDEQ intended to include process plant components such as pumps, vats, or tanks, then a storage drawdown time would be appropriate to include along with the design storm, such that pumps would not be sized for 100-year instantaneous peak inflow rates and vats and tanks not subject to direct meteoric inflow would not be sized for meteoric water that would normally already be accounted for in sizing of the ponds or TSF.

Replace "Each" with "A", add "or system" after "structure" and replace "passing" with "bypassing" in the final sentence. With this sentence now applying to all structures, rather than simply dams/ponds and spillways, the Rule should allow for designs where a high-flow bypass is not part of a given individual structure, but rather could be a separate control structure located just upstream as would be the case for a treatment system.

# 04. Minimum Plans and Specifications for All Facilities Designed to Contain Process Water.

a. iii. c) There is an inability to document that all borings beneath the site cyanidation facility have been adequately abandoned.

## IMA Rationale: Consistency with text of the Rule.

- b. General liner design criteria include all of the following:
- i. A structurally stable subgrade for the overlying components and contained material. The subgrade should be constructed to resist consolidation, excessive differential settlement that compromises liner performance, and uplift resulting from pressures inside or outside the containment unit to prevent distortion of overlying components. The prepared subgrade shall be accepted by the owner prior to construction of overlying components.

ii. A smooth rolled and compacted soil layer, or equivalent layer approved by the Department, in intimate contact with the overlying geomembrane liner. The soil layer shall have a minimum thickness of twenty-four (24) inches compacted to ninety-five percent (95%) of maximum dry density according to Standard Proctor Test ASTM D698 or Modified Proctor Test ASTM D1557. The soil layer must be placed in a minimum of four (4) lifts that each have a compacted thickness of six (6) inches and a hydraulic conductivity less than or equal to 10-6 cm/sec. The soil layer shall be free of putrescible, frozen or other deleterious materials. The upper lift of soil shall not contain particles in excess of point seven five (0.75) inches (nineteen (19) mm) in largest dimension; provided larger particles may be allowed if consistent with the manufacturer's specifications for the overlying liner and approved by the Department. Angular, sharp material is not allowed regardless of diameter. This layer shall be placed within two percent (2%) of optimum moisture content to achieve the specified compaction and hydraulic conductivity. The prepared soil layer shall be accepted by the owner prior to construction of overlying components.

## IMA Rationale: Language not necessary as discussed at March 13, 2020 rule-making meeting.

- iii An equivalent layer replacing the soil layer described in Subsection 200.04.b.ii. must include the following:
- a. A layer that is not a geomembrane and has a liquid flow rate no greater than that of twenty-four (24) inches of compact soil with a hydraulic conductivity less than or equal to 10<sup>-6</sup> cm/sec;
- b. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste, process water, or process contaminated water to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;
- c. Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes; and
- d. Certification from a qualified Idaho licensed professional engineer that the liquid flow rate through the equivalent layer is no greater than the liquid flow rate through two (2) feet of compacted soil with a hydraulic conductivity less than or equal to 10<sup>-6</sup> cm/sec. The hydraulic conductivity of any alternative to the two (2) feet of compacted soil must be determined using recognized and generally accepted methods.

IMA Rationale: To avoid any implication that project-specific testing (field or laboratory) might be required. Equivalence should be readily demonstrable with manufacturer's or third-party standards/certifications already available, not require any new effort.

## 204. DESIGN CRITERIA FOR TAILINGS IMPOUNDMENTS

The plans and specifications for tailings impoundments designed to contain process water must provide for:

- **01. Engineered Liner System**. In addition to meeting the general liner requirements in Subsection 200.04.b, the engineered liner system plans and specifications must provide for:
- a. Geomembrane liners that have a minimum thickness of sixty (60) milli-inches (1.5 mm) or equivalent liners approved by the Department; and
- b. A system designed to minimize hydraulic head on the primary liner to twelve (12) inches or less to the extent practicable, in consideration of the following factors:
  - i. Interior slopes of the facility;
  - ii. Location and size of the supernatant pool throughout the life of the facility;
  - iii Prevention of flooding of any overliner drain system;
  - iv. Avoiding hydrologic connection between and among process water sources and the liner system's upper surface;
    - v. Limiting damage to the composite liner; and
  - vi. Physical and chemical characteristics of the tailings and process water to be stored; and.
  - c. Monitoring points that will provide for early detection of discharges of pollutants.

IMA Rationale: IMA and its members agree that minimizing hydraulic head on a tailings storage facility (TSF) liner system, and hastening consolidation of fine-grained tailings, are desirable outcomes; however, the 12" hydraulic head criterion added to 204.01.b is problematic, particularly if the criterion applies to the entire liner footprint.

In heap leach pads and municipal solid waste (MSW) landfills, a 12" maximum hydraulic head criterion is often achieved by installation of a herringbone or similar layout of perforated pipes installed in flat areas (but not on valley side slopes) just above the liner. Because the overlying material (run-of-mine or crushed ore, MSW, and/or gravel drainage media) is highly permeable and unsaturated, the spacing of the parallel pipes is generally controlled by the permeability of the material, and the application rate of fluid (meteoric water and/or leach solution) to the facility. Such a configuration leads to a "mounded" saturation profile, with hydraulic head at a maximum halfway between each set of parallel pipes, and at a minimum over the center of each pipe. With the high permeability of the overlying material, and typical fluid application rates, this approach commonly requires a drain spacing of several tens of feet. A drainage layer, if any, is included to protect the pipe system and liner when the overlying material contains large or sharp particles.

Tailings facilities are substantively different than leach pads or MSW landfills, because the tailings deposit is saturated throughout, and is of relatively low permeability, which leads to higher hydraulic gradients and thus a closer drain spacing to limit head on the liner. Depending on tailings properties and facility configuration, application of a 12" head criterion to a tailings facility leads to an impractically close drain spacing of only a few feet, implying the need instead

for a continuous layer of granular (sand/gravel) material over the liner. A granular layer would have to be placed with heavy equipment, risking difficult-to-detect but possibly substantial damage to the underlying composite liner. Placement of such a granular layer would be infeasible on steep slopes, limiting the portion of a TSF footprint over which head could be limited to 12".

Aside from slope limitations on meeting a 12" head criteria throughout a facility using an overliner drain, TSFs must maintain a water pool atop the tailings, of sufficient depth (typically 10 or more feet) to settle suspended solids and operate reclaim pumps without entraining solids that would prevent direct reuse of the water in ore processing. This pool will fluctuate seasonally due to accumulation of meteoric water, tailings consolidation, water reuse, and evaporation. Pool depths of at least several tens of feet are common in practice. Especially early in a facility's operating life, this pool would inevitably be in direct contact with the liner over a portion of the facility, and the flooded portion of the liner would be subject to hydraulic head equal to the depth of the overlying water. If a continuous over-liner drainage system existed and was hydrologically connected to the pool (or potentially even to tailings deposition spigots around the perimeter), the entire drainage system would flood and subject the affected portions of the liner (i.e., all liner within the footprint of the drain and below the elevation of the pool) to hydrostatic pressure. No amount of pumping from the overliner drain sumps would remedy this, as the pool provides a continuous supply of water. This situation is unavoidable during the operational life of a TSF in a seasonally wet climate, with a continuous drain system in contact with the pool. At closure, such a system would require continuous pumping to maintain less than 12" of head, and even with pumping would allow some amount of water to exist in contact with the entire liner surface. Upon pumping cessation, the system would revert to hydrostatic pressure over the entire liner, with the high transmissivity of the granular layer enabling transmission of water from the tailings to a leak located anywhere in the facility. This could lead to substantially higher long-term leakage rates than would be the case with no drain at all. In the latter case, the low permeability of the consolidated tailings in contact with the liner would limit the amount of water that could be transmitted to a hole in the liner, and thus the leakage rate.

In practice, Nevada's narrative standard on minimization of head on the liner, which was the starting point for 204.01.b, has mitigated the issues identified above without resorting to a prescriptive head criterion. Attached to this letter are drawings from a recently permitted and currently operating TSF in Nevada (TSF3 at Goldstrike Mine) that utilized geosynthetic strip drains to minimize head on the liner and promote tailings consolidation. While every facility geometry is different, and requires a site-specific approach, a few things are notable about the TSF3 drain layout:

- 1. Gravel placement was limited to a relatively narrow causeway along a former drainage, that housed the primary overliner collection drain (a 6" diameter perforated pipe within geotextile-wrapped gravel).
- 2. Secondary drainage, and reduction of hydraulic head on liner, was accomplished with a herringbone pattern of geosynthetic strip drains on a portion of the floor of the facility, spaced at 30 feet.
- 3. No drains were installed under the southern portion of the facility floor, where the pond was expected to be located.

4. No drains were installed on the steeply-sloping (approximately 2 horizontal: 1 vertical) interior embankment slopes.

This approach serves to minimize head on the liner in key areas, promote tailings consolidation, while minimizing liner damage risk and avoiding long-term flooding over large portions of the liner area (and resulting leakage risk). Such an approach could be enabled by striking the prescriptive head requirement and clarifying the narrative component of 204.01.b as indicated above.

#### 300. APPLICATION PROCESSING PROCEDURE.

**02.** Accuracy and Protectiveness Review. Within sixty (60) days of receipt of an application and upon determination by the Department that the application is a complete application, the Department will review the application for accuracy and protectiveness based on these and other applicable rules including, but not limited to, IDAPA 58.01.02, "Water Quality Standards," and IDAPA 58.01.11, "Ground Water Quality Rule."

## 03. Permit Application Rejection.

a. If the Director decides to reject an application under subsection 300.03.b, the Director shall provide public notice within sixty (60) days after receipt of the application. Such notice shall be in writing and explain the basis for the rejection. Rejection of an application terminates the processing of that application regardless of any subsequent appeal. (3-30-06)

IMA Rationale: This language is not necessary. Idaho Code 39-118A makes clear that a rejection of an application fulfills IDEQ's obligation to act within 180 days.

- b. A complete permit application shall be rejected if:
- i. The cyanidation facility as proposed cannot be conditioned for construction, operation, and closure so as to comply with applicable state law; or
- ii. Any payment required by the cost recovery agreement under subsection 100.04 is due and unpaid.

IMA Rationale: Payment of reasonable fees to process an application is not a basis for rejection of an application under Idaho Code 39-118A.

## 04. Draft Permit and Fact Sheet.

- a. If the Director decides to prepare a draft permit or draft major permit modification, the draft shall contain the following information:
- i. All Any necessary conditions based onto ensure applicable requirements of Sections 200 through 204 are met;

- ii. All Any necessary conditions for an approved alternative under to ensure applicable requirements of Section 205 are met;
  - iii. All conditions under Section 500;
  - iv. Any information incorporated into the draft permit by reference; and
- v. Any other condition the Director finds appropriate to protect water quality and public health.
- IMA Rationale: Idaho Code 39-118A envisions that approval of plans and specifications and construction in accordance with such plans constitutes a permit. We appreciate IDEQ may incorporate the approved plans in a formal permit as well as certain operational and closure requirements. We believe IMA's proposed language is more in keeping with Idaho Code 38-118A.
- b. A fact sheet shall accompany the draft permit. The fact sheet shall briefly state the principal facts and the significant legal and policy questions considered in the draft permit. The fact sheet shall include, when applicable:
- i. A brief description of the cyanidation facility and the operating plan described in the application or permit modification request.
- ii. A brief summary of the basis for the conditions on the draft permit, including references to applicable statutes or regulations and appropriate supporting references to the administrative record; and
- iii. Reasons for the Director's proposed decision on any permit conditions or alternatives to required standards requested by the applicant; and
- iviii. The name and phone number of the agency representative to contact for additional information.

IMA Rationale: Language not necessary, it is addressed in ii.

#### 400. PUBLIC NOTICE AND COMMENT.

#### **06.** Public Comment Period.

- a. The Director will allow public comment on a draft permit for a period of sixty thirty (6030) days beginning on the date of the public notice for the draft permit. All written comments received during this public comment period shall be considered by the Director.
- **O7. Public Meeting**. Within thirty fifteen (3015) days after the date of the public notice for the draft permit or draft major permit modification, the Department shall hold a public meeting. Oral or written comments may be submitted by any person at the public meeting. The meeting shall be conducted by an official designated by the Director. In order for the Department to address

public comments in its Response to Public Comments pursuant to Subsection 450.03, comments must be submitted in writing during the public comment period under subsection 400.06.

IMA Rationale: IMA does not object to an automatic public meeting. However, in order to streamline the 180 day process, something IDEQ suggested at the March 13<sup>th</sup> rule-making meeting, we believe a 30 day public comment period is warranted, and the public meeting can be held within that time period.

## 450. FINAL PERMIT DECISION.

- **03. Response to Public Comments**. The Director shall prepare and make available to the public a response to relevant written comments received during the public comment period under Subsection 400.06. This response shall:
- a. Specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and
  - b. Briefly describe and respond to all relevant written comments on the draft permit. (1-1-88)
  - 04. **Basis for Permit Denial**. The Director shall deny a permit if:
  - a. The application is incomplete or inaccurate;

## IMA Rationale: IDEQ has already determined that the application is complete.

- <u>ba</u>. The cyanidation facility as proposed cannot be conditioned for construction, operation, and closure so as to comply with applicable state law; or
- e<u>b</u>. The Idaho Department of Lands has determined that the permanent closure plan does not meet the requirements of <u>A</u> permanent closure plan has not been submitted for approval <u>under</u> Chapter 15, Title 47, Idaho Code<u>.</u>, and the rules promulgated thereunder.

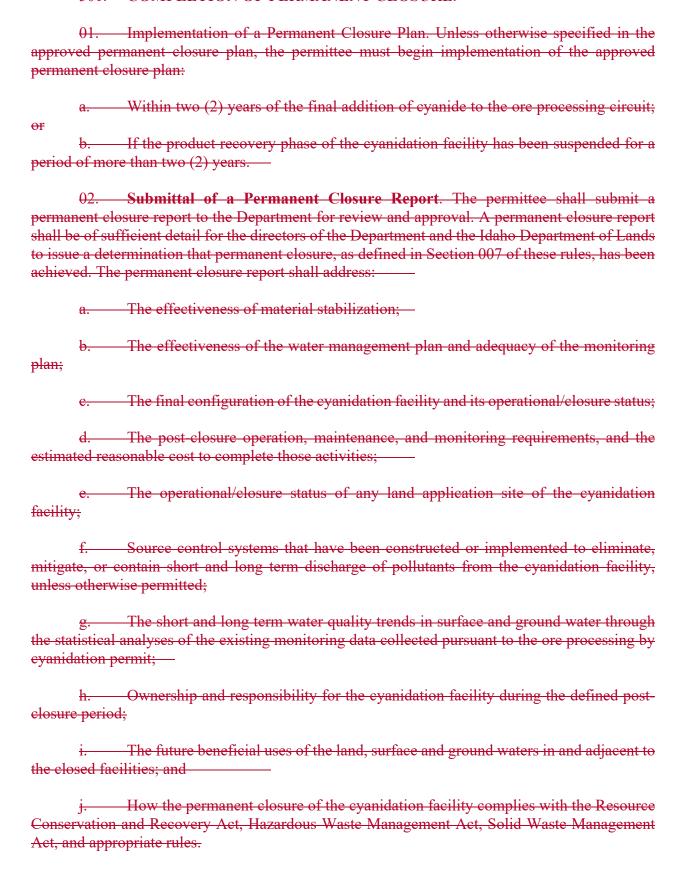
IMA Rationale: Consistent with recent revisions to Idaho Code 39-118A.

## 500. PERMIT CONDITIONS.

10. Permanent Closure. The permanent closure plan, as approved by the Department in coordination with the Idaho Department of Lands, shall be incorporated by reference into the Department-issued permit as a permit condition and shall be enforceable as such. The Department may evaluate permanent closure based on different performance standards than those used by the Idaho Department of Lands.

IMA Rationale: IDEQ does not approve a permanent closure plan under 39-118A or Chapter 15, Title 47, Idaho Code.

#### 501. COMPLETION OF PERMANENT CLOSURE.



## 502. DECISION TO APPROVE OR DISAPPROVE OF A PERMANENT CLOSURE REPORT.

- 01. **Issuance of Director's Determination**. Within sixty (60) days of receipt of a permanent closure report, the Director shall issue to the permittee a Director's determination of approval or disapproval of the permanent closure report.
- 02. Director's Determination to Disapprove a Permanent Closure Report. A Director's determination to disapprove a permanent closure report shall specifically identify and discuss those reasons for disapproval, any administrative actions being considered by the Director, and the permittee's options and procedures for administrative appeal. The Director's determination to disapprove a permanent closure report must include:
  - a. Identification of errors or inaccuracies in the permanent closure report;
  - b. Issues or details which require additional clarification;
  - c. Failures to fully implement the approved permanent closure plans;
  - d. Outstanding violations or other noncompliance issues; and
- e. Other issues supporting the Department's disagreement with the contents, final conclusions or recommendations of the permanent closure report.

IMA Rationale: In order to avoid duplication of rule and statute between two agencies and to help further the Governor's efforts under his executive order on reducing red tape, we believe that these two sections are unnecessary. The Mined Land Reclamation Act and IDL's implementing rules dictate what goes into a Permanent Closure Plan and when financial assurance for closure should be released. IDL is required to "consult" with IDEQ before approving a permanent closure plan and releasing financial assurance. See Idaho Code §§ 47-106 (h) and 47-1512 (i). It is not necessary for both agencies to approve a Permanent Closure Plan or a Permanent Closure Report.

We look forward to working with IDEQ over the next few months to ensure that formal rulemaking proceeds in the spring of 2020.

Sincerely,

Benjamin J. Davenport

Attachments enclosed

